Center for Developmental and Molecular Biology

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The center investigates specific protein molecules that may have therapeutic value and the production of these proteins in the mammary glands of genetically engineered animals.

Background

Established in 1993, one of the Center objectives has been to investigate, characterize and synthesize several chemotherapeutic proteins (lytic peptides)and to develop cost-effective production methods. One of these methods involves the production of the proteins using genetically engineered animals (transgenic animals) that can secrete the proteins at high concentrations in their milk.

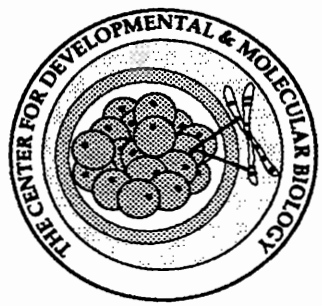
Technology Development Progress

Technologies are being developed for the high efficiency production of valuable proteins (e.g. lytic peptides), not normally found in animal milk, by producing transgenic animals. Genes (DNA sequences) that code for the specific peptides of interest are introduced into the embryos of selected animal species which, when successful, express the desired protein in the milk producing cells or glands. The expression of the foreign protein in the milk in relatively high quantities provides a cost-effective method of producing the valuable proteins.

Highlights and Accomplishments

Genes for specific peptides have been sequenced and prepared for injection into animal embryos. These genes have been successfully injected in mouse embryos and the transgenic nature of the new-born animals have been confirmed.

Similar methods have been used to produce goats which, it is expected, will express the desired proteins in their milk. Expression of the proteins in transgenic goats is highly desirable because the animals produce significant quantities of milk and are relatively easy to breed and maintain.



Three different types of transgenic mice, each carrying a single lytic peptide gene or one of two plant protein genes, have been produced and the presence of the putative gene confirmed. In addition, a transgenic goat has also been produced.

A new spin-off company PanGenics, Inc. has been established in Utah. The company has received a Phase I SBIR award from NIH for $80,000.

Summary Data:

Current		Cumulative	
1996-97 Award	$150,000	Awards	$510,880
Matching Funds	$601,159	Matching Funds	$1,405,642
Patents Pending	2	Patents Issued	1
Patents Issued	1	License Agreements	1
License Agreements	1	Spin-off Companies	1
Spin-off Companies	1		
Companies Assisted	10		
Industry Jobs	4		
Center Jobs	13		